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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,817	12/04/2003	Daniel M. Kuchta	YOR920030563US1 (163-23)	7470

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EXAMINER	
KIM, DAVID S	

ART UNIT	PAPER NUMBER
2613	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/727,817	KUCHTA ET AL.	
	Examiner	Art Unit	
	David S. Kim	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,6-11,13,15-22 and 24* is/are rejected.

7)☒ Claim(s) *3,5,12,14,23 and 25* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. **Claims 1-2, 4, 6-11, 13, 15-22, and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hogan et al. (U.S. Patent Application Publication No. US 2004/0091268 A1, hereinafter "Hogan") in view of Shaffner et al. (U.S. Patent Application Publication No. 2004/0227583 A1, hereinafter "Shaffner") and Koh et al. (U.S. Patent Application Publication No. 2005/0201711 A1, hereinafter "Koh").

Regarding claim 1, Hogan discloses:

A radio frequency device, comprising:

a signal layer having radio frequency (RF) transmission lines (e.g., RF lines in Fig. 5) disposed over a ground plane (e.g., ground plane in Fig. 5).

Hogan does not expressly disclose:

the RF lines configured and dimensioned to provide impedance matching along the RF lines.

Rather, Hogan discloses a different means for providing impedance matching (impedance matching in paragraph [0037]). However, configuring and dimensioning RF lines is another known means for providing impedance matching along the RF lines. Shaffner provides some examples (Figs. 7a-8 and 10, impedance matching portions 15). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement different means for providing impedance matching, including the configuring and dimensioning of RF lines. One of ordinary skill in the art would have been motivated to do this to provide at least design flexibility. Additionally, by using the technique of configuring and dimensioning RF lines, one can simplify the apparatus of Hogan by removing its impedance matching film resistors (Hogan, paragraph [0037]).

Hogan in view of Shaffner does not expressly disclose:

a shield formed as a part of the RF lines and disposed below an RF choke of a DC current supply to form an intermediate capacitance between the choke and the shield to control parasitic effects.

However, the usage of a shield formed as part of RF lines is known in the art. Koh teaches RF lines with shield parts (e.g., 20 shielded by its own shield 16 in Fig. 6C, paragraph [0061]). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ shielding teachings with the RF lines of Hogan. One of ordinary skill in the art would have been motivated to do this since shielding is a common practice for blocking undesired electrical interference between various electrical components.

Moreover, the physical placement of an RF choke can be an issue of design choice. A suitable physical location could be on top of this shield to save space on the circuit plane. In such a location, an intermediate capacitance could form between the choke and the shield, resulting in reduced parasitic effects.

Regarding claim 2, Hogan in view of Shaffner and Koh discloses:

The device as recited in claim 1, wherein the device includes an optical transceiver having a laser biased by the DC current supply (Hogan, BIAS in Fig. 5).

Regarding claim 4, Hogan in view of Shaffner and Koh does not expressly disclose:

The device as recited in claim 1, wherein a balance between the intermediate capacitance versus the parasitic effects is achieved to provide a flat or peaked transmission response over a selected frequency range.

However, this limitation does not significantly limit the claimed invention since the device of Hogan in view of Shaffner and Koh would inherently have some kind of transmission response over a selected frequency range, and such responses are generally flat or peaked over a selected frequency range.

Regarding claim 6, Hogan in view of Shaffner and Koh discloses:

The transceiver as recited in claim 1, further comprising a submount for supporting the choke (Hogan, notice the physical mounting structure of choke 34 in the Figures).

Regarding claim 7, Hogan in view of Shaffner and Koh discloses:

The transceiver as recited in claim 1, wherein the RF line supplies AC signals to a laser diode (Hogan, AC RF signals in paragraph [0037]).

Regarding claim 8, Hogan in view of Shaffner and Koh discloses:

The transceiver as recited in claim 7, further comprising a lens (Hogan, lens 28 or 216 in the Figures) to focus light output from the laser diode.

Regarding claim 9, Hogan in view of Shaffner and Koh discloses:

The transceiver as recited in claim 1, further comprising a photodiode (Hogan, e.g., monitor photodiode 29; also, notice receiver portion 3 that would generally comprise a photodiode as the optical receiver).

Regarding claim 10, Hogan in view of Shaffner and Koh discloses:

An optical transceiver, comprising:

a substrate having a signal layer formed thereon, the signal layer having radio frequency (RF) transmission lines (Hogan, e.g., RF lines in Fig. 5) disposed over a ground plane (Hogan, e.g., ground plane in Fig. 5), the RF lines configured and dimensioned to provide impedance matching along the RF lines (Shaffner, Figs. 7a-8 and 10, impedance matching portions 15), the RF lines having a portion forming a shield (discussion of shield in view of Shaffner and Koh above);

the shield being disposed below an RF choke of a DC current supply to form an intermediate capacitance between the choke and the shield to control parasitic effects (discussion of shield in view of Shaffner and Koh above); and

a laser modulated in accordance with RF signals transmitted by the RF lines (Hogan, paragraph [0037]).

Regarding claim 11, Hogan in view of Shaffner and Koh discloses:

The transceiver as recited in claim 10, wherein the laser is biased by the DC current supply (Hogan, BIAS in Fig. 5).

Regarding claim 13, Hogan in view of Shaffner and Koh does not expressly disclose:

The transceiver as recited in claim 10, wherein a balance between the intermediate capacitance versus the parasitic effects is achieved to provide a flat or peaked transmission response over a selected frequency range.

However, this limitation does not significantly limit the claimed invention since the transceiver of Hogan in view of Shaffner and Koh would inherently have some kind of transmission response over a selected frequency range, and such responses are generally flat or peaked over a selected frequency range.

Regarding claim 15, Hogan in view of Shaffner and Koh discloses:

The transceiver as recited in claim 10, further comprising a submount for supporting the choke (Hogan, notice the physical mounting structure of choke 34 in the Figures).

Regarding claim 16, Hogan in view of Shaffner and Koh discloses:

The transceiver as recited in claim 10, further comprising a lens (Hogan, lens 28 or 216 in the Figures) to focus light output from the laser.

Regarding claim 17, Hogan in view of Shaffner and Koh discloses:

The transceiver as recited in claim 1, further comprising a photodiode (Hogan, e.g., monitor photodiode 29; also, notice receiver portion 3 that would generally comprise a photodiode as the optical receiver).

Regarding claim 18, Hogan in view of Shaffner and Koh discloses:

A method for fabricating a transceiver, which simultaneously provides impedance matched transmission for radio frequency (RF) and shields against transmission losses due to parasitic effects, comprising the steps of:

identifying parasitic electromagnetic elements associated with an RF choke for a given placement on a substrate (in view of the discussion of Shaffner and Koh above, one would expect that particular elements would introduce parasitic effects associated with RF choke 34 of Hogan); and

placing and dimensioning RF lines on the bench to form impedance matched RF lines (Shaffner, Figs. 7a-8 and 10, impedance matching portions 15) wherein a portion of the RF lines shield (see the discussion of the placement of shielding below RF choke 34 of Hogan in view of Shaffner and Koh above) the RF choke for a given bandwidth (any suitable bandwidth) such that impedance matching (Shaffner,

Figs. 7a-8 and 10, impedance matching portions 15) and control of parasitic effects (Shaffner and Koh, see discussion of parasitic effects above) of the RF choke are simultaneously (the simultaneous provision of these effects would be expected in the combination of Hogan and Shaffner and Koh) provided.

Regarding claim 19, Hogan in view of Shaffner and Koh does not expressly disclose:

The method as recited in claim 18, further comprising the step of iteratively modifying the placing and dimensioning of the RF lines to meet specifications.

However, such an iterative step is a common manufacturing step in the fabrication of devices. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to include such a step in the fabrication of a transceiver of Hogan in view of Shaffner and Koh. One of ordinary skill in the art would have been motivated to do this since it is generally known that iterations allow one to compare different versions of a product according to different parameters so that one can eventually achieve desired specifications. This basic and well-known concept of trial and error meets this limitation.

Regarding claim 20, Hogan in view of Shaffner and Koh discloses:

The method as recited in claim 18, wherein the parasitic effects include a parasitic inductance for an electrical path (an electrical path of Hogan, e.g., trace lead(s) in paragraphs [0037-0038] inherently include a parasitic inductance) from the RF choke to a laser and a parasitic capacitance (the configuration of the RF choke set apart from the ground plane constitutes a parasitic capacitance) between the RF choke and ground plane.

Regarding claim 21, Hogan in view of Shaffner and Koh discloses:

The method as recited in claim 18, further including a submount (Hogan, notice the physical mounting structure of choke 34 in the Figures) for the RF choke and further comprising the step of modifying the RF choke submount location such that a parasitic capacitance of the RF choke to ground is shielded (e.g., see the discussion of the placement of shielding below RF choke 34 of Hogan in view of Shaffner and Koh above).

Regarding claim 22, Hogan in view of Shaffner and Koh discloses:

The method as recited in claim 18, wherein the transceiver is an optical transceiver (Hogan, transceiver in paragraph [0031]).

Regarding claim 24, Hogan in view of Shaffner and Koh does not expressly disclose:

The method as recited in claim 23, further comprising balancing between the intermediate capacitance versus the parasitic effects to provide a flat or peaked transmission response over a selected frequency range.

However, this limitation does not significantly limit the claimed invention since the transceiver of Hogan in view of Shaffner and Koh would inherently have some kind of transmission response over a selected frequency range, and such responses are generally flat or peaked over a selected frequency range.

Allowable Subject Matter

3. **Claims 3, 5, 12, 14, 23, and 25** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

4. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection. Notice the application of the new teachings from Shaffner and Koh.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Huang et al. is cited show a shield for an inductor (e.g., Fig. 4).

Bartur et al. is cited to show an optical device with RF chokes (310 and 311 in Figs. 4 and 5A).

Salmela et al. is cited to show the configuring and dimensioning of RF lines to provide impedance matching (e.g., Figs. 1a and 1b).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth N. Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DSK

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER